FIG. 1

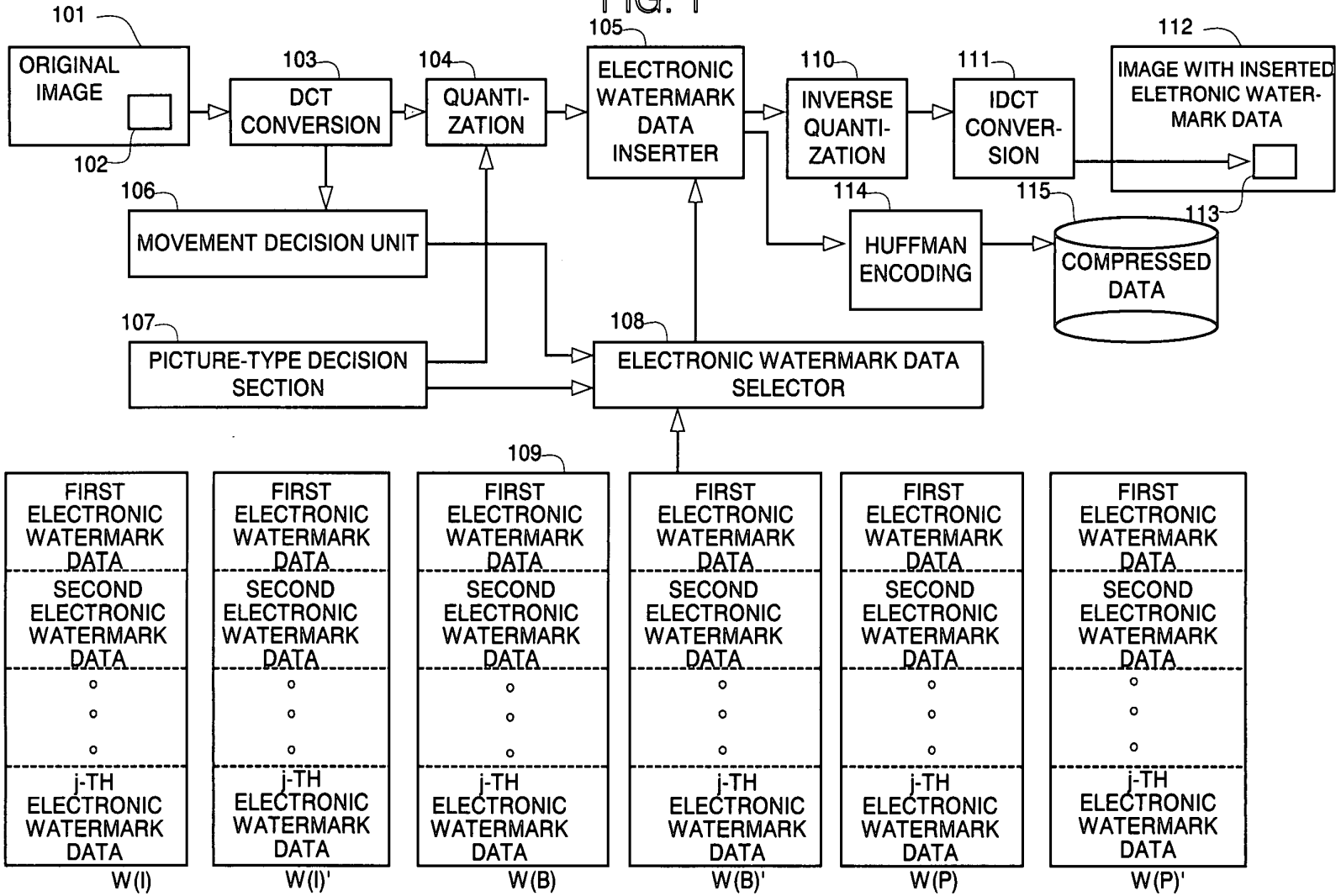

101
ORIGINAL IMAGE
102
103
DCT CONVERSION
104
QUANTI-ZATION
105
ELECTRONIC WATERMARK DATA INSERTER
110
INVERSE QUANTI-ZATION
111
IDCT CONVER-SION
112
IMAGE WITH INSERTED ELETRONIC WATER-MARK DATA
113
106
MOVEMENT DECISION UNIT
114
HUFFMAN ENCODING
115
COMPRESSED DATA
107
PICTURE-TYPE DECISION SECTION
108
ELECTRONIC WATERMARK DATA SELECTOR
109
FIRST ELECTRONIC WATERMARK DATA
SECOND ELECTRONIC WATERMARK DATA
j-TH ELECTRONIC WATERMARK DATA
W(I)
W(I)'
W(B)
W(B)'
W(P)
W(P)'

FIG. 2

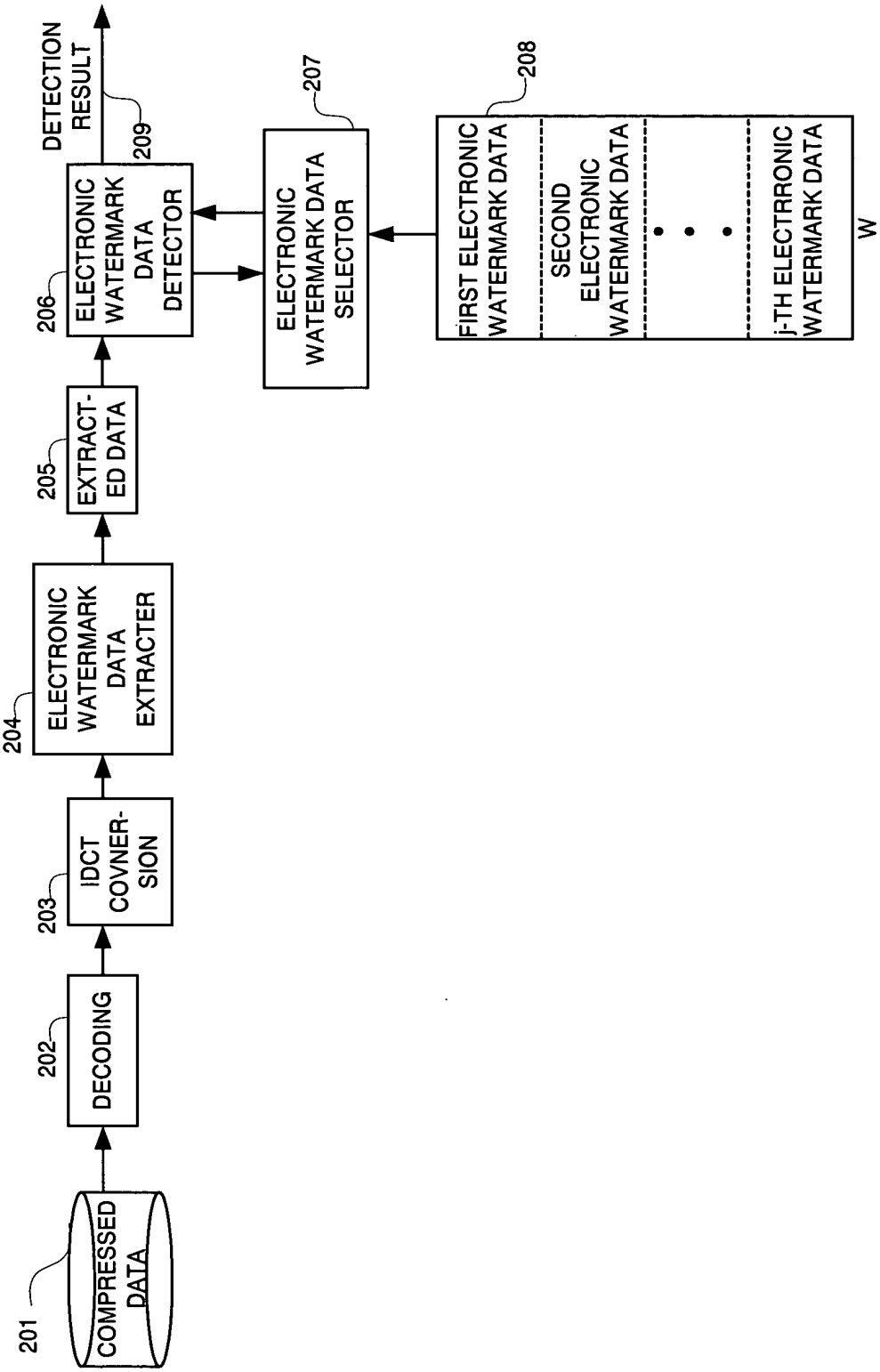

201
COMPRESSED DATA
202
DECODING
203
IDCT COVNER-SION
204
ELECTRONIC WATERMARK DATA EXTRACTER
205
EXTRACT-ED DATA
206
ELECTRONIC WATERMARK DATA DETECTOR
207
ELECTRONIC WATERMARK DATA SELECTOR
208
FIRST ELECTRONIC WATERMARK DATA
SECOND ELECTRONIC WATERMARK DATA
j-TH ELECTRRONIC WATERMARK DATA
W
209
DETECTION RESULT

FIG. 3

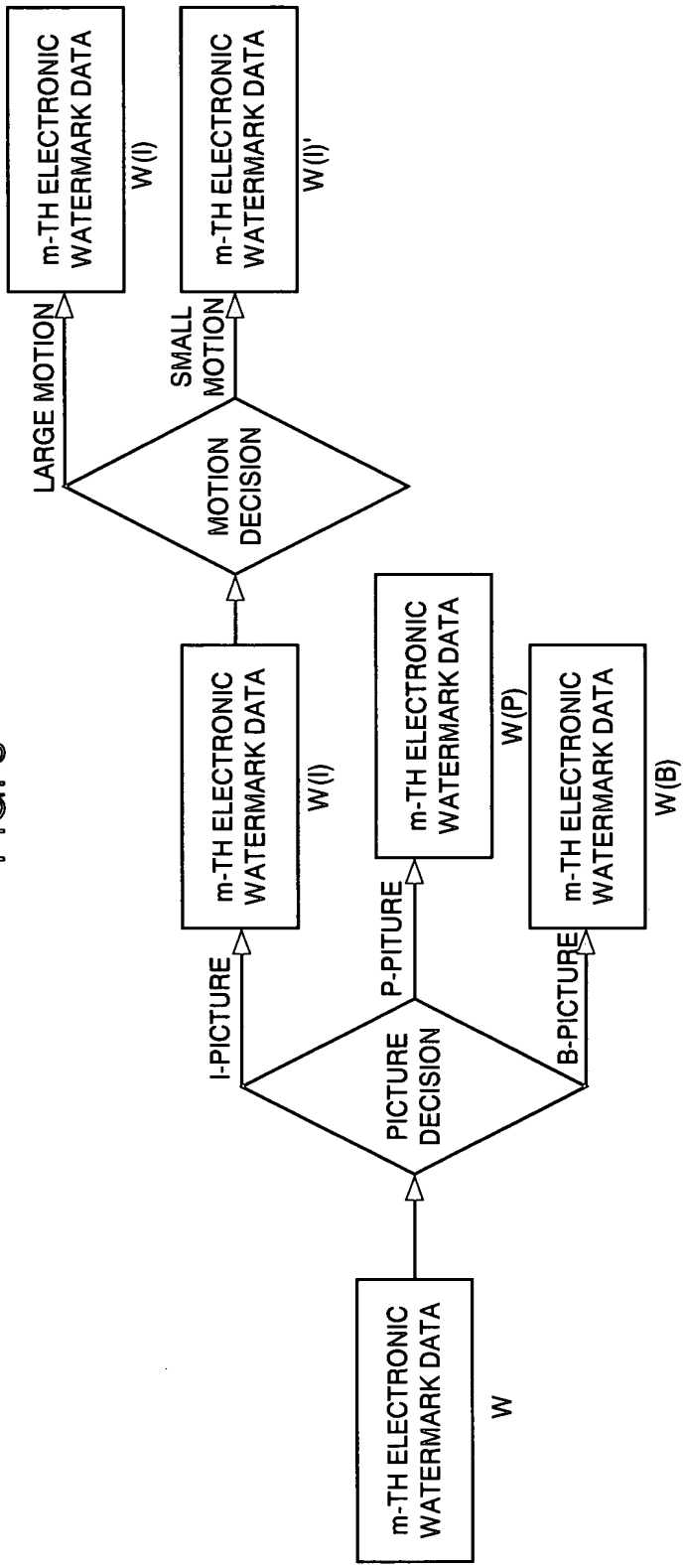

m-TH ELECTRONIC WATERMARK DATA
W
PICTURE DECISION
I-PICTURE
P-PITURE
B-PICTURE
m-TH ELECTRONIC WATERMARK DATA
W(I)
m-TH ELECTRONIC WATERMARK DATA
W(P)
m-TH ELECTRONIC WATERMARK DATA
W(B)
MOTION DECISION
LARGE MOTION
SMALL MOTION
m-TH ELECTRONIC WATERMARK DATA
W(I)
m-TH ELECTRONIC WATERMARK DATA
W(I)'

FIG. 4

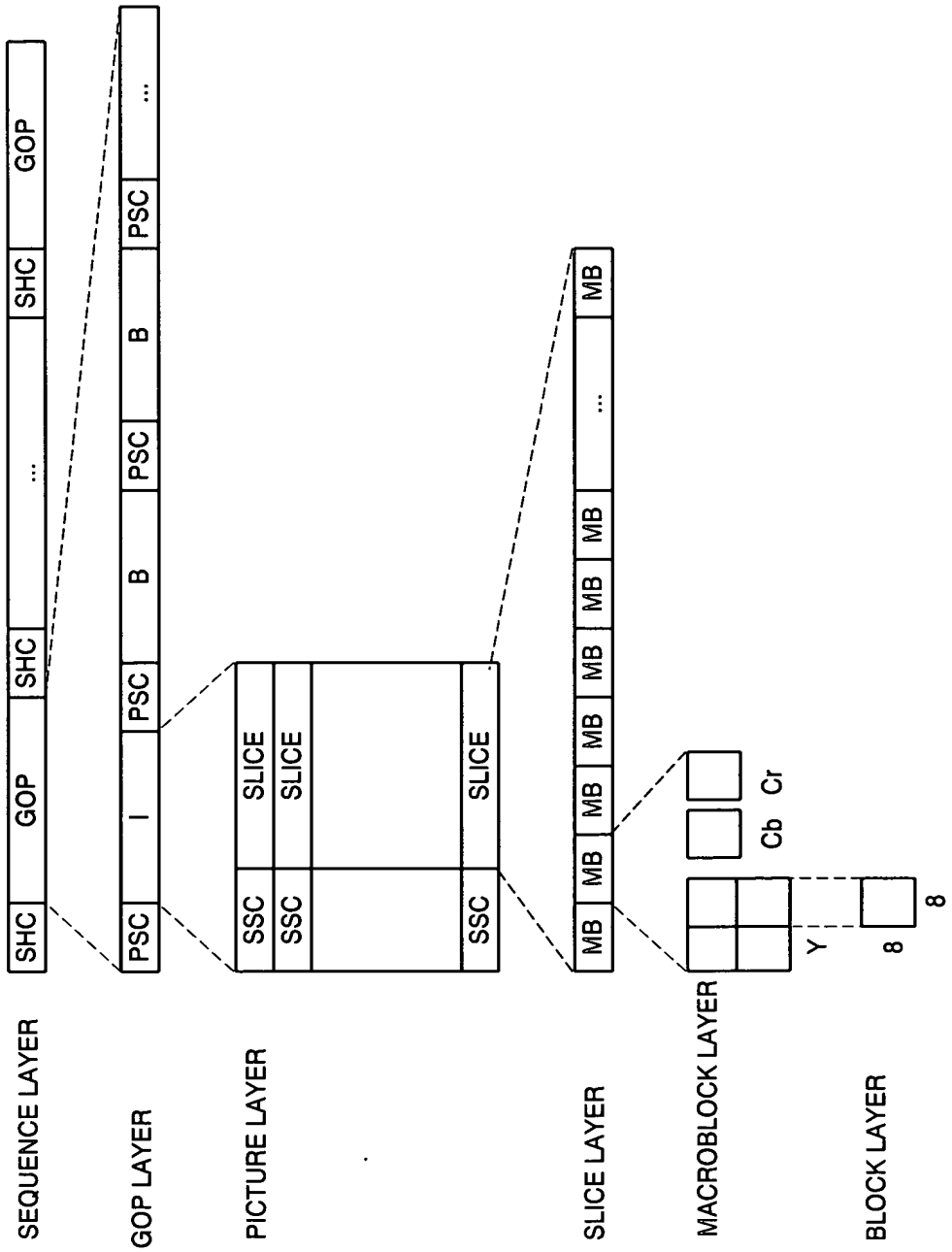

SEQUENCE LAYER
GOP LAYER
PICTURE LAYER
SLICE LAYER
MACROBLOCK LAYER
BLOCK LAYER
SHC
GOP
...
PSC
I
B
SSC
SLICE
MB
Y
Cb
Cr
8

FIG. 5

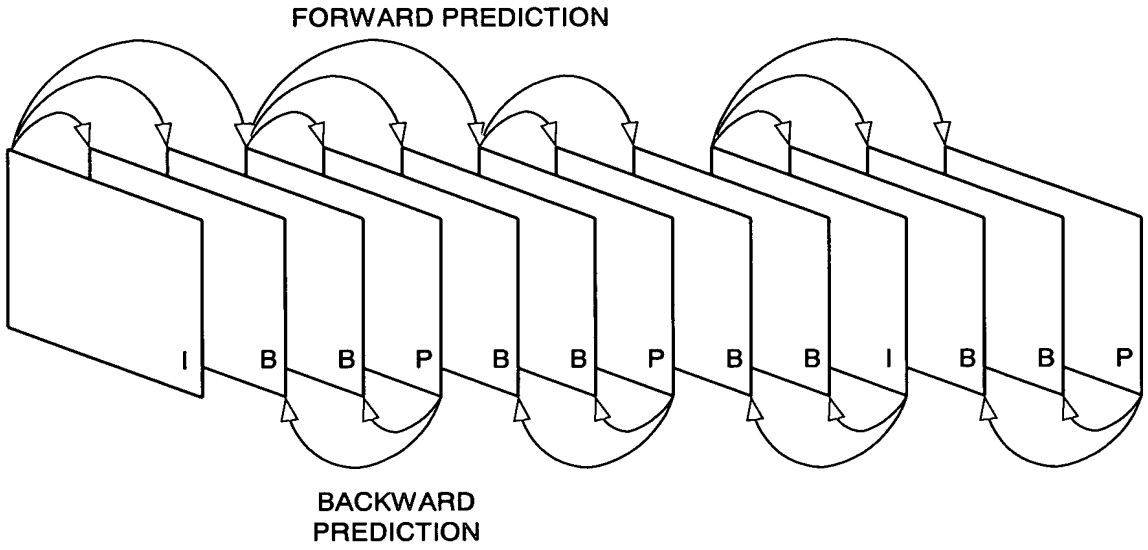


FIG. 6

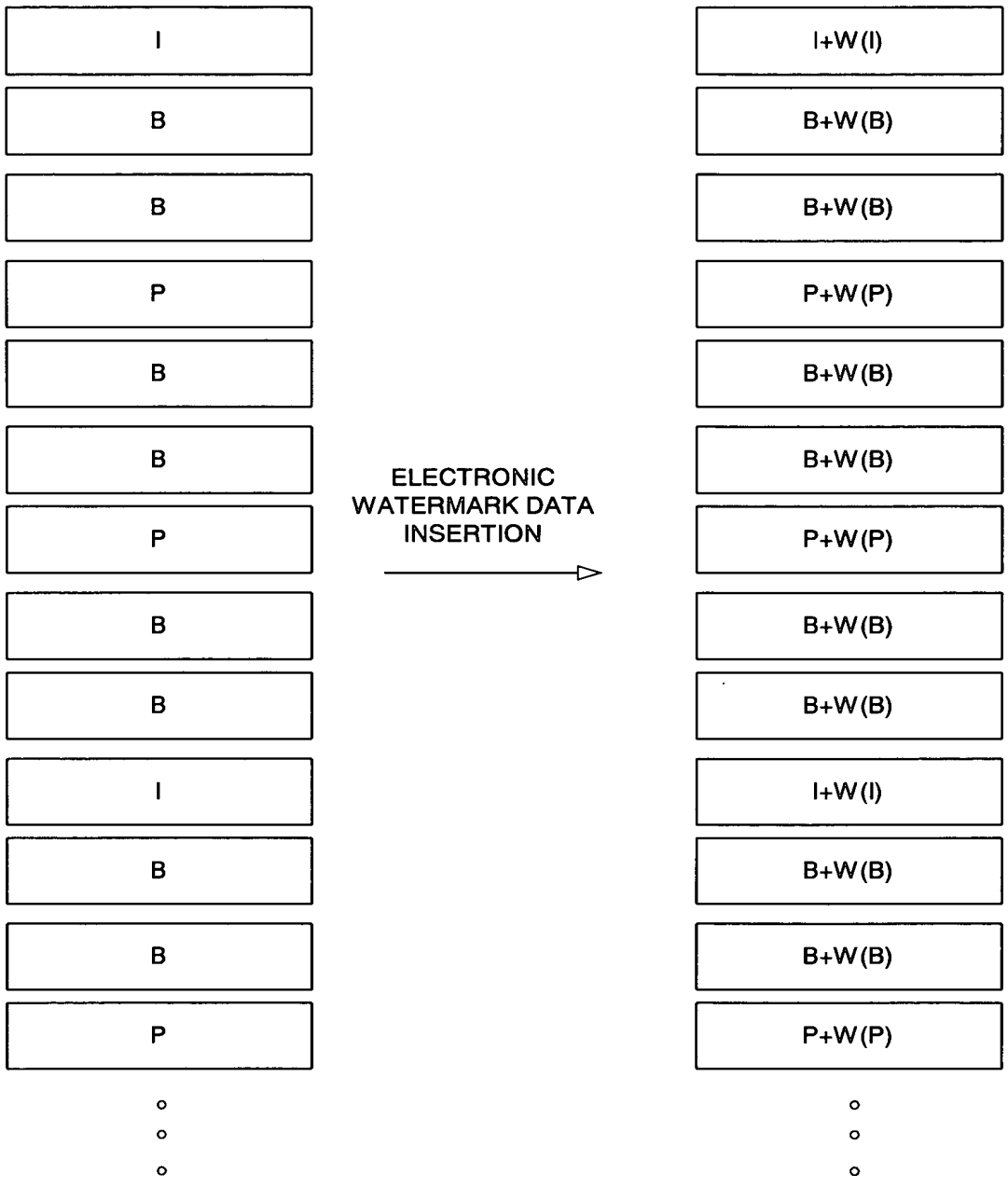
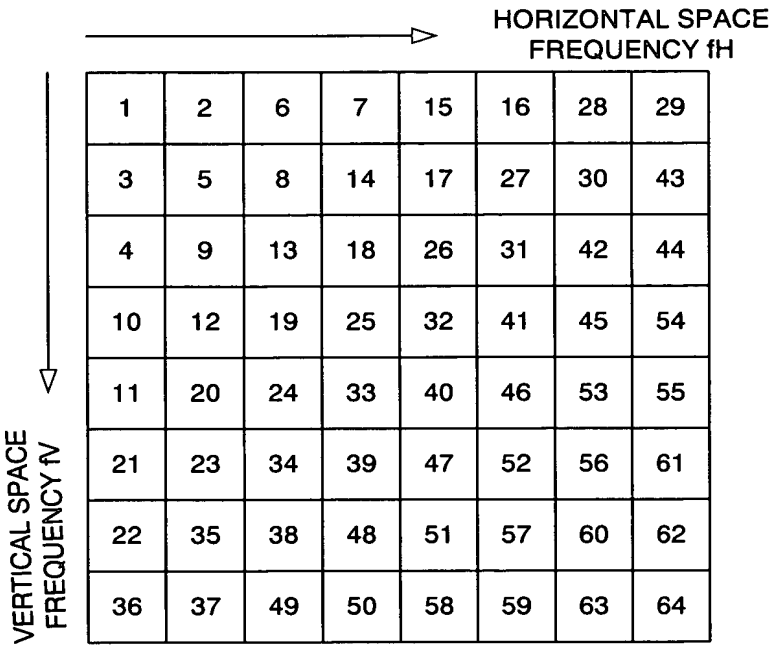

I
B
B
P
B
B
P
B
B
I
B
B
P
ELECTRONIC WATERMARK DATA INSERTION
I+W(I)
B+W(B)
B+W(B)
P+W(P)
B+W(B)
B+W(B)
P+W(P)
B+W(B)
B+W(B)
I+W(I)
B+W(B)
B+W(B)
P+W(P)

FIG. 7



1	2	6	7	15	16	28	29
3	5	8	14	17	27	30	43
4	9	13	18	26	31	42	44
10	12	19	25	32	41	45	54
11	20	24	33	40	46	53	55
21	23	34	39	47	52	56	61
22	35	38	48	51	57	60	62
36	37	49	50	58	59	63	64

FIG. 8

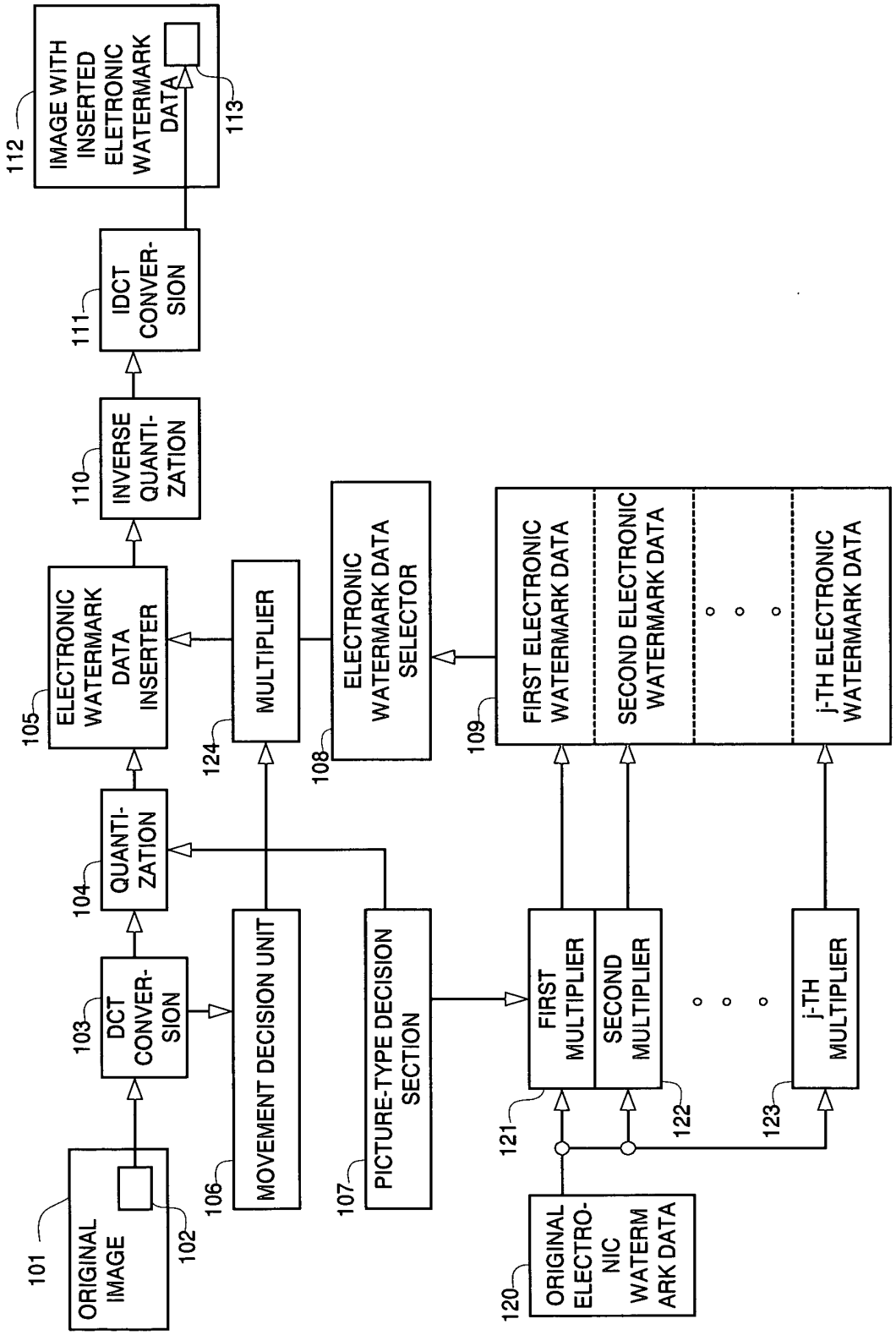
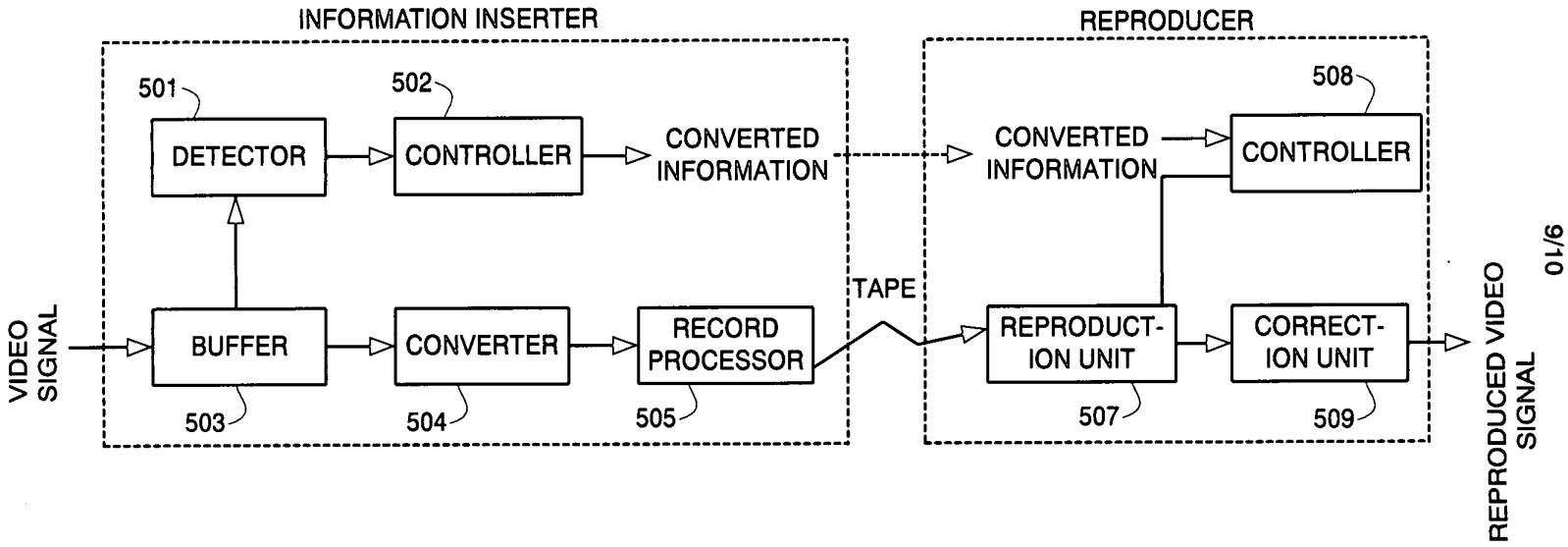

101
ORIGINAL IMAGE
102
103
DCT CONVER-SION
104
QUANTI-ZATION
105
ELECTRONIC WATERMARK DATA INSERTER
106
MOVEMENT DECISION UNIT
107
PICTURE-TYPE DECISION SECTION
108
ELECTRONIC WATERMARK DATA SELECTOR
109
FIRST ELECTRONIC WATERMARK DATA
SECOND ELECTRONIC WATERMARK DATA
j-TH ELECTRONIC WATERMARK DATA
110
INVERSE QUANTI-ZATION
111
IDCT CONVER-SION
112
IMAGE WITH INSERTED ELETRONIC WATERMARK DATA
113
120
ORIGINAL ELECTRO-NIC WATERM ARK DATA
121
FIRST MULTIPLIER
SECOND MULTIPLIER
122
123
j-TH MULTIPLIER
124
MULTIPLIER

FIG. 9
PRIOR ART



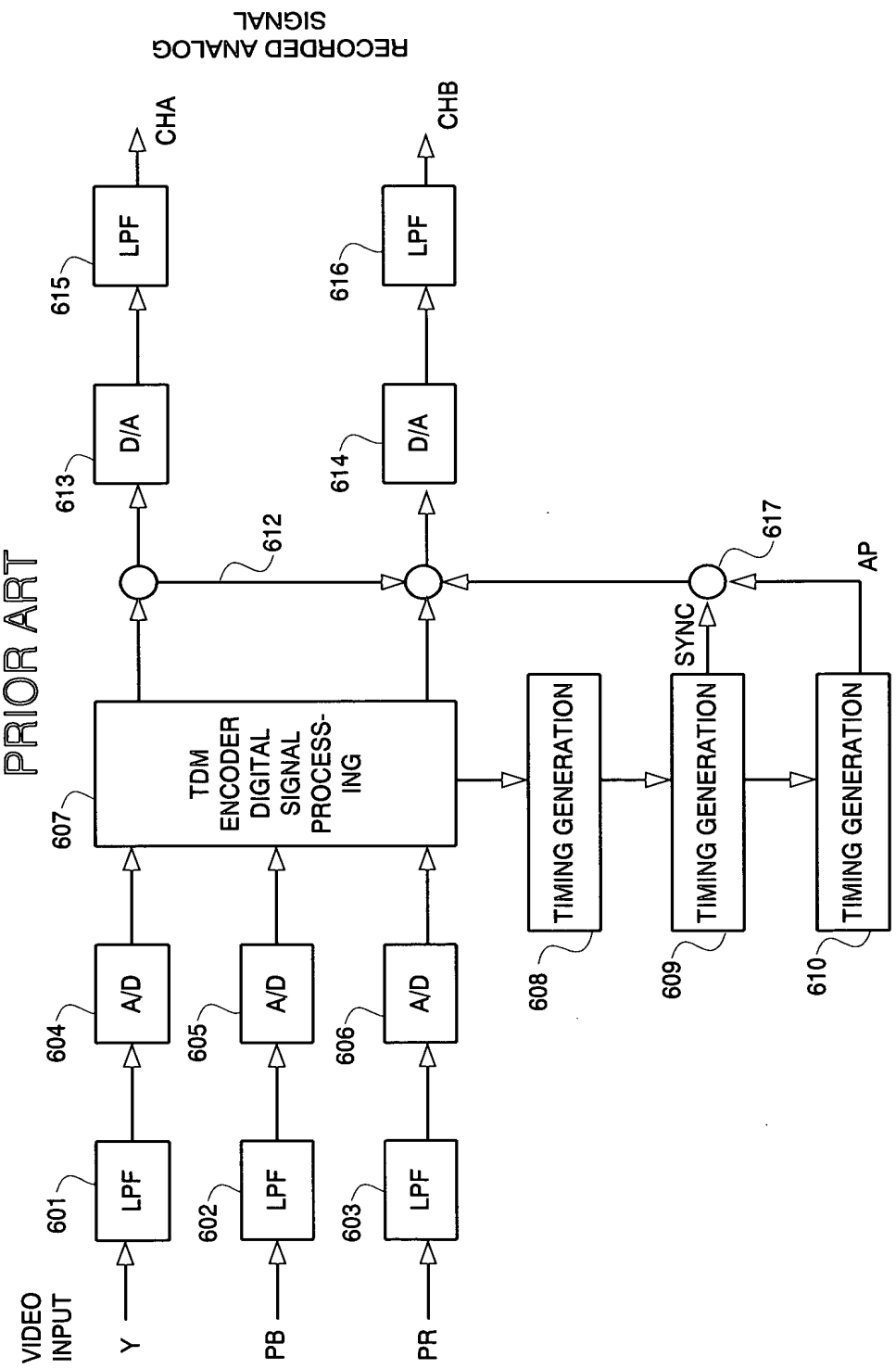


FIG. 10
PRIOR ART